

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-31 (canceled)

32. (currently amended) An environmental control system for providing conditioned air to a cabin of a vehicle, comprising:

a catalytic heat exchanger system adapted for removing at least one pollutant from an air stream, and said catalytic heat exchanger system
5 further adapted for cooling said air stream; and

at least one duct coupled to said catalytic heat exchanger system for providing said air stream to said catalytic heat exchanger system from a compressed air source, wherein said catalytic heat exchanger system comprises:

10 a catalytic precooling disposed within a first housing, wherein said catalytic precooling has a cross-flow plate-fin configuration, and wherein said catalytic precooling removes said at least one pollutant from said air stream and cools said air stream; and

15 an augmentative catalytic device disposed in series with said catalytic precooling, wherein said augmentative catalytic device includes a single plate-fin layer, and wherein said augmentative catalytic device removes said at least one pollutant from said air stream independently from said catalytic precooling;

20 wherein said catalytic precooling and said augmentative catalytic device are disposed within a single housing.

33. (original) The environmental control system of claim 32, wherein said catalytic precooler comprises a plurality of hot pass passages arranged longitudinally within said first, a first catalyst support disposed within said plurality of hot pass passages, and at least one catalyst disposed on or
5 within said first catalyst support.

34. (original) The environmental control system of claim 32, wherein said augmentative catalytic device is disposed upstream from said catalytic precooler.

35. (canceled)

36. (original) The environmental control system of claim 32, wherein said augmentative catalytic device comprises a plurality of channels, and a second catalyst support disposed within said plurality of channels, and said at least one catalyst is disposed on or within said second catalyst support.

37. (currently amended) A vehicle, comprising:
at least one environmental control system for providing conditioned air to a cabin of said vehicle; and

at least one compressed air source for providing an air stream to
5 said at least one environmental control system, wherein said environmental control system comprises a catalytic heat exchanger system adapted for cooling said air stream and for catalytically removing at least one pollutant from said air stream, wherein said catalytic heat exchanger system comprises:

a catalytic precooler disposed within a first housing and cooling
10 said air stream, catalytically removing said at least one pollutant, and having an
offset cross-flow plate-fin configuration, wherein said offset cross-flow plate-fin

configuration increases turbulence of said air stream passing through said catalytic precooler; and

15 an augmentative catalytic device disposed in series with said
catalytic precooler and within said first housing, wherein said augmentative
catalytic device catalytically removes said at least one pollutant, wherein said
augmentative catalytic device includes a single plate-fin layer and has a spiral
plate-fin configuration, and wherein each of said catalytic precooler and said
20 augmentative catalytic device is independently capable of catalytic ozone
conversion.

38. (original) The vehicle of claim 37, wherein each of said catalytic precooler and said augmentative catalytic device is independently capable of an initial catalytic ozone conversion efficiency of at least about 80%.

39. (original) The vehicle of claim 37, wherein each of said catalytic precooler and said augmentative catalytic device is independently capable of a second catalytic ozone conversion efficiency of at least about 60% after about 30,000 hours of operation.

40. (original) The vehicle of claim 37, wherein said catalytic precooler and said augmentative catalytic device have a combined second catalytic ozone conversion efficiency of at least about 85% after about 30,000 hours of operation.

41. (original) The vehicle of claim 37, wherein said at least one compressed air source comprises a gas turbine engine.

42. (original) The vehicle of claim 37, wherein said vehicle comprises a commercial wide-body aircraft.

Claims 43-47 (canceled)

48. (new) An environmental control system, comprising:

a catalytic precooling, wherein said catalytic precooling includes a plurality of hot pass passages that have a cylindrical form and are arranged longitudinally within a housing, wherein said catalytic precooling includes a first porous catalyst support disposed within said plurality of hot pass passages and a catalyst disposed on or within said first catalyst support, and wherein said catalytic precooling decomposes ozone contained in an hot air stream passing through said hot pass passages and cools said air stream; and

an augmentative catalytic device disposed in series with said catalytic precooling within said housing, wherein said augmentative catalytic device is essentially circular and has a spiral plate-fin configuration, wherein said augmentative catalytic device includes a second porous catalyst support disposed within said plurality of hot pass passages and a catalyst disposed on or within said second catalyst support, wherein said augmentative catalytic device decomposes ozone contained in said hot air stream, and wherein said augmentative catalytic device decomposes ozone independently from said catalytic precooling.

49. (new) The environmental control system of claim 48, wherein each of said catalytic precooling and said augmentative catalytic device is adapted for passage of said air stream therethrough at a flow rate of from about 20 to 400 pounds of air per minute.

50. (new) The environmental control system of claim 48, wherein said augmentative catalytic device has a weight in the range of from about 2.0 to 4.0 Kg.